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Sr. N° 0120

Development of techniques for the simplification of the Investigation and
Estimates Process for Natural Resources in Remote and Relatively
Unexplored Areas (Venezuela)

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Report: Period June 1972 - March 1973

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E73-10481) DEVELOPMENT OF TECHNIQUES FOR
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R E P O R T

Period June 1972 - March 1973

VEN 02 PROJECT

Principal Investigator:

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The first imagery pertaining to the area VEN-02 Project was received during the month of November.

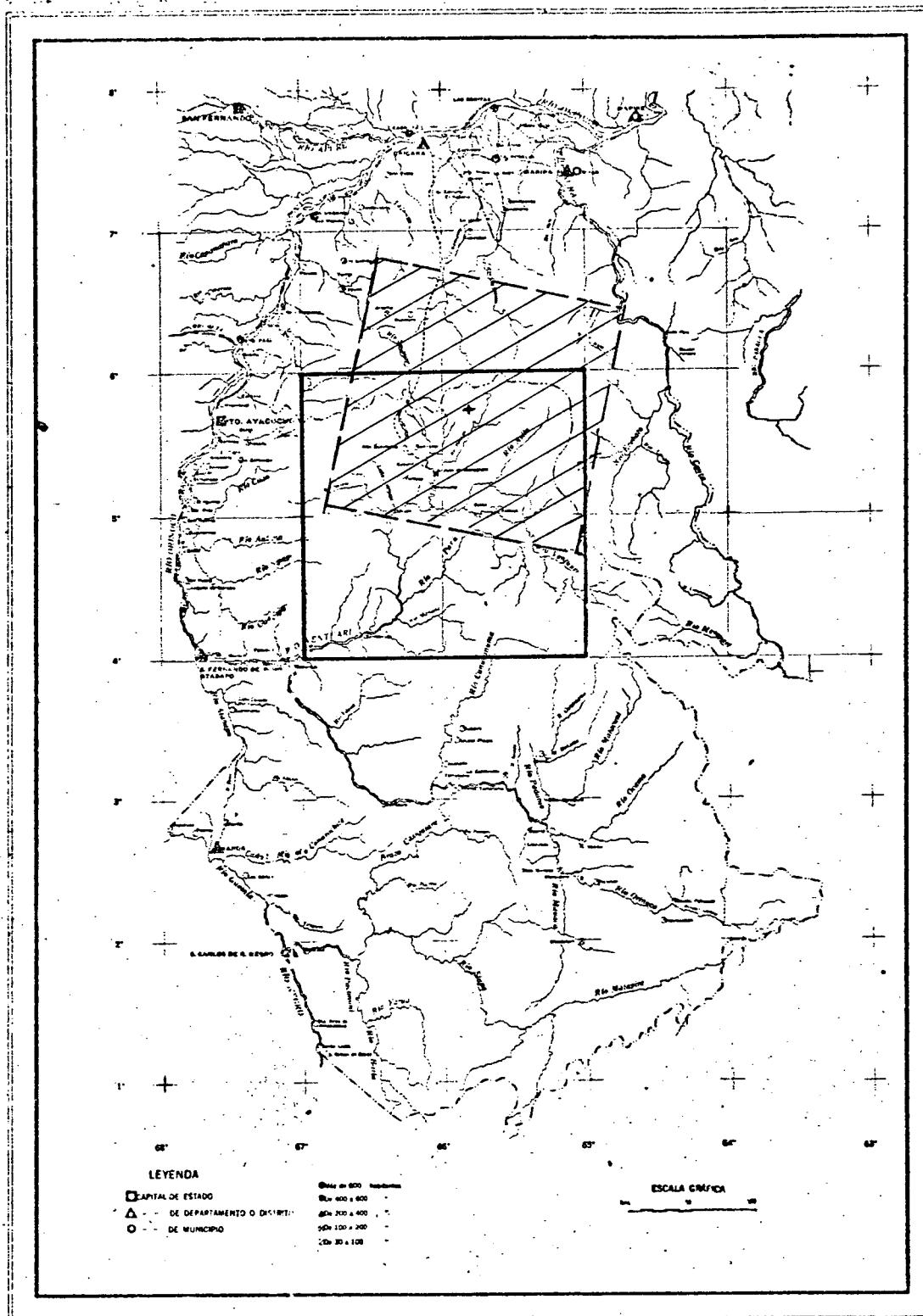
The imagery received covers the area shown on Graphic N° 1. The area is approximately 32,400 Km², of which only 27% can be utilized as the rest is under complete clouds coverage.

Graphic N° 2 shows the percentage of the area available for observation per band.

The positional errors of the original images are:

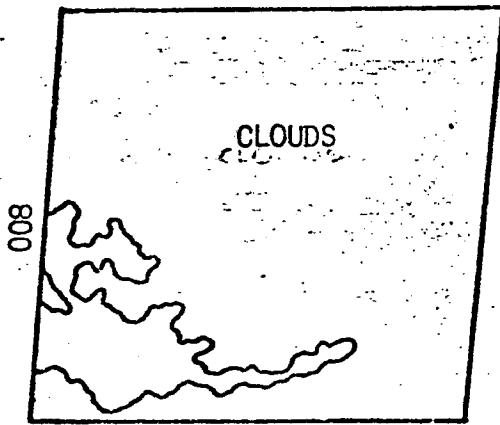
Point 5 North error 7'10" East error 4'07"

Point 4 North error 8'14" East error 3'06"

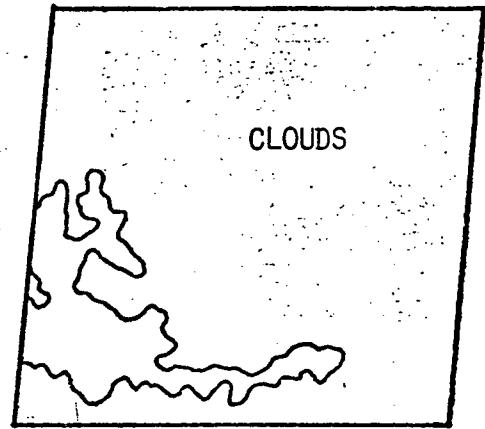


GRAPHIC 1

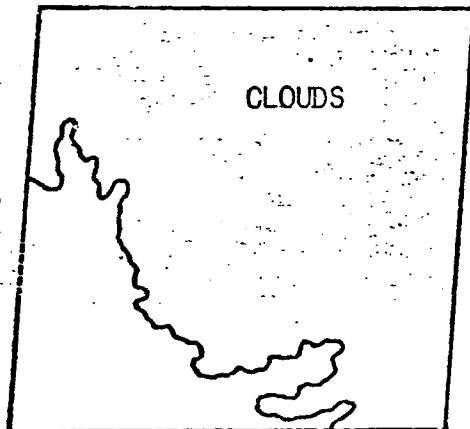
2



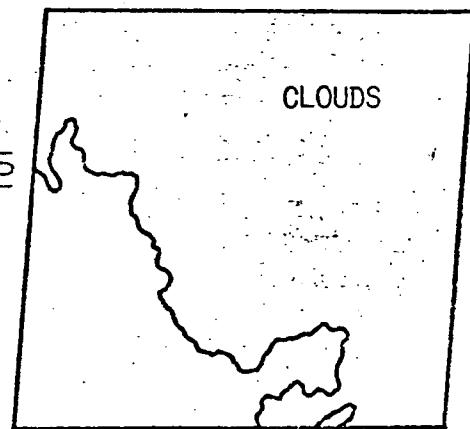
BAND 4



BAND 5



BAND 6



BAND 7

GRAPHIC 2

The computation of the positional error was performed utilizing 2nd order Astro control points. These some points were forwarded to be used for the precision products.

Actually, investigations are underway in Geology, Geomorphology, Vegetation, Hydrography and Cartography with the mentioned, but the desired results have not been obtained because of the reasons already presented.

However, in support of the VEN-02 Project, a program of investigation in three (3) principal fields has been developed:

1.- Interpretation

2.- Cartography

3.- Laboratory Process

This program and its' progress is described as follows:

1.- INTERPRETATION.

Taking as a base the Radar material and experience gained by our personnel, interpretation was performed in areas which contain problems similar to the VEN-02 Project. One of the areas presently being studied is the San Camilo Forestry Reservation. Conventional photography at scales 1:20,000, 1:60,000, 1:130,000 and radar imagery at scale 1:250,000 and 1:400,000 is being utilized for this purpose and comparisons with ERTS-1 imagery of the same area have begun.

In the San Camilo area there is a heavy density of vegetation characteristic of tropophilous jungles of tropical areas, very similar to the jungles in the Amazonas Territory area. Also found there, are savannas very similar in their aspects to those found in the VEN-02 Project area. These comparisons permit the photo interpreters to familiarize themselves with the Satellite imagery.

In the fields such as Geology and Geomorphology, images of other parts of the country are being utilized where details of these fields are well known, such as the southern zone of Lake Maracaibo, Península de Paraguana and Pe

ninsula Paria and Araya.

A complete geomorphological study has been performed of the VEN-02 area utilizing conventional photography.

Actually a photogeological study is being executed as a means of providing stronger support to the study to be done utilizing ERTS-1 imagery.

In the geological aspect, there is complete area coverage with radar imagery. It is planned to use radar imagery at scale 1:250,000 and 1:1,000,000 to make comparative studies between these and satellite imagery of the same scale.

2.- CARTOGRAPHY.

Studies have been conducted in the obtainment of cartographic material from satellite imagery.

Using Band 6 of the MSS and the rectification system, rectified images have been obtained at a scale of 1:500,000 with errors well within the accuracy requirement for that scale (the placement error).

It has been possible of obtain photo enlargements at a scale of 1:100,000 utilizing conventional optic procedures

and the Rectifier Zeiss Seg. V. The Archipelago Los Testigos is the area selected for these studies as it is formed by islands small enough to permit the evaluation of image quality for cartographic means such as calculations of distances, directions, position, etc.

3.- LABORATORY PROCESS.

Having a well equiped laboratory, the training of personnel exclusively dedicated to this type work has begun.

Work assignments are underway for making controlled mosaics, photomaps, using satellite imagery. Color compositions have been made using such method as the Color Kit and the Transfer Kit and during the present year, it may be possible to obtain equipment to make the color compositions by the Additive methods instead of the Sub-
tractive methods that is in actual use now.

All this work has been done to gain the experience to better support the VEN-02 ERTS-1 Project and should serve as pilot areas of support for the ERTS-B Project presented to NASA should this new proposal be accepted.